

## Postdoctoral Fellow - Mechanobiology

**Note:** Applicants for this position must have a PhD and direct experience in mechanobiology research.

The Center for Physical Genomics and Engineering (CPGE) at Northwestern University is seeking a postdoctoral fellow to join a cutting-edge research team at the crossroads of genomics, biology, physics, engineering and medicine. Our main goal is to investigate fundamental molecular questions and develop novel approaches relevant to the prevention, detection, diagnosis and treatment of cancer and other currently intractable diseases at early, treatable stages. We have developed a platform of pioneering super-resolution and nano-sensing optical microscopy technologies which, combined with genome mapping and other functional genomic approaches, allow us to study the causal relationship between the nanoscale structure of chromatin, global patterns of gene expression, and their alteration in disease. The successful candidate will work under the direction of Prof. Vadim Backman, Director of the Center for Physical Genomics and Engineering, and collaborate closely with a variety of transdisciplinary Center researchers.

As evidenced by recent publications in *Nature Biomedical Engineering*, *PNAS*, *Science Advances*, *Cancer Research*, and *Scientific Reports* the Center undertakes systematic approaches to understanding cancer development by integrating molecular dynamics simulations, live cell super-resolution nano-imaging, computational genomics, and genome mapping technologies.

The Center provides a highly collaborative, transdisciplinary environment consisting of researchers with diverse backgrounds: biomedical engineering, molecular biology, mathematics, physics, chemical engineering, optics, etc. Additionally, the Center has collaborative projects with over 20 physicians, biomedical, and physical sciences investigators both internationally and domestically. Research projects reside within one or more priority areas: cancer biology, biophysics of the genome, or cancer therapeutics.

We are seeking a highly motivated, enthusiastic, and creative candidate with excellent interpersonal skills and the ability to work both independently and as part of a collaborative team. The successful candidate will have the opportunity to conduct cutting-edge research integrating stem cell and molecular biology with projects focused on mechanobiology for applications in regenerative medicine. The main objective is to determine mechanisms underlying the influence of various external mechanical cues on gene expression and genome architecture, and ultimately on cell fate/phenotype.

It is anticipated that the successful candidate will engage in preparation of original manuscripts for conferences and peer-reviewed journal publication as well as participate in writing of grant proposals.

### **Specifically you will:**

- Design functional genomics experiments, including transcription and epigenetic profiling.
- Investigate mechanobiology and mechanotransduction processes in cells.

### **Qualifications**

The lab seeks applicants with a strong background in mechanobiology. Successful candidates will have a mixture of the following skills:

1. Degree:  
Ph.D. or M.D./Ph.D required, with proven experience in mechanobiology research.
2. Prior Experience:
  - a) Strong background in stem cell and molecular biology
  - b) Expertise in designing functional genomics experiments, including transcription and epigenetic profiling
  - c) Experience in investigating mechanobiology and mechanotransduction processes in cells
  - d) Experience working with animal models
3. Proven track record demonstrating critical thinking, problem solving, attention to detail and creativity is essential.
4. Excellent prioritization and project management skills.
5. Strong communication and interpersonal skills and fluency in both spoken and written English.
6. A solid record of quality publications in peer-reviewed journals showing an output commensurate with opportunity.

Qualified candidates should send a CV and cover letter to [physicalgenomics@northwestern.edu](mailto:physicalgenomics@northwestern.edu)